

trees, plants, and occasionally views drawn from nature, appear on each plate.

The work contains figures and descriptions of all the viviparous quadrupeds found in the United States, and from Texas, California, and the North-west Coast, to the British possessions and arctic regions of North America.

The work will be delivered to subscribers in numbers of five plates each, at intervals of two months from the publication of each number, making six numbers annually, and the whole work will be completed in about thirty numbers.

## PROCEEDINGS OF LEARNED SOCIETIES.

### ZOOLOGICAL SOCIETY.

Sept. 27, 1842.—William Yarrell, Esq., Vice-President, in the Chair.

Mr. Fraser, the naturalist to the Niger expedition, exhibited several new species of Quadrupeds, constituting part of his collection formed at Fernando Po; and Mr. Waterhouse, at the request of the Chairman, read his description of the new species, these having been placed in his hands for examination by Mr. Fraser.

Mr. Waterhouse first drew attention to a very interesting new genus of Rodents, which he characterized under the name

#### ANOMALURUS\*.

*Molares*  $\frac{4-4}{4-4}$ , radicati. *Cranium* sine processu post-orbitali ossis temporalis, sed foramine antorbitali magno, partem musculi masseteris transmittente. *Palatum* anticè coarctatum, posticè emarginatum in formâ triangulari. *Cauda* modicè elongata et subfloccosa, parte basali triente subtùs scutis magnis in serie duplici longitudinalitèr dispositis (singulis angulo prominente) obtectâ. *Aures* magnæ, subnudæ. *Patagium* inter artus extensum. *Rhinarium* nudum. *Pedes* subtùs nudi; unguibus falcularibus, valdè compressis; pedes antiqui 4-dactyli, digitis subæqualibus; postici 5-dactyli, digitis subæqualibus, interno excepto, hoc brevior.

ANOMALURUS FRASERI. *An. vellere longo, permolli; corpore supèr nigro; dorso flavescenti-fusco lavato; fronte incanescente; corpore infrà albo, vel albido; artubus intus, patagio ad marginem et gutture fuliginoso tinctis.*

	unc.	lin.
Longitudo ab apice rostri ad caudæ basin....	14	0
———— caudæ .....	8	6
———— auris .....	1	3
———— tarsi digitorumque .....	2	6

*Hab.* Fernando Po.

Upon a cursory inspection this animal would be regarded as a

\* From *ἀνομος*, out of law, and *ὀψά*, a tail.—Should this have been previously used in a generic sense in Natural History, the name *Aroæthrurus* (from *ἀρόω*, to plough, and *αἶθρα*, air) may be substituted.

species of *Pteromys*, having most of the general external characters of the members of that group; there are, however, some points of distinction between the present animal and the large Flying Squirrels, which are important; of these the most conspicuous are the extraordinary scales which cover the under side of the basal third of the tail: these scales are of a pale horn-colour, sixteen in number in one of two specimens before me, and fifteen in the other, and arranged in two longitudinal series: each scale is narrow at the base and broad at the opposite extremity, and in fact nearly of a triangular form; but as the scales on one side alternate with those of the other, no interstices are left; they not only cover the under surface of the tail, but overlap the sides; in this overlapping of the scale a ridge is formed, the extremity of which is produced into an angle; the point of the angle is directed backwards. The portion of the tail which is thus protected beneath is well clothed with fur above, but the hairs are not long, and the apical portion (which is cylindrical) is much less bushy than in the large Flying Squirrels constituting the genus *Pteromys*. The hinder feet have the heel clothed with fur, but the outer margin beneath is naked, and not densely clothed, as in *Pteromys*. The lateral flying membrane extends from the wrist to the ankle, and is supported moreover by a long cartilage in front, as in *Pteromys*; but this cartilage has its origin at the elbow-joint, and not at the wrist, as in the genus just mentioned. The interfemoral membrane extends to the heel, and is moreover attached to the sides of the tail, and when expanded forms almost a straight line.

The ears are large, much longer than broad, and naked, excepting at the base on the outer side, where they are covered with long fur, like that on the body; the naked portion has a slight flesh-like tint, but is nearly white, as are also (Mr. Fraser's notes state) the naked portions of the feet and the tip of the muzzle. The hairs of the moustaches are very numerous, and although not very thick, are unusually long. The fur is long and remarkably soft, and the hairs of which it is composed are all of one kind; that is, there are no longer interspersed stronger hairs, such as we usually find in the fur of the Rodents; the fur on the upper parts is sooty black, but, excepting on the membranes, most of the hairs are rather broadly tipped with yellowish rust-colour: on the upper surface of the head the colour is replaced by grey; on the under parts of the body the fur is dirty white; the throat is blackish, and the under side of the throat is tinted with sooty grey. The under side of the membranes is sparingly clothed with hairs; towards the margin the hairs are more numerous, and of a blackish tint.

In the structure of the skull *Anomalurus* differs considerably from the known species of *Sciuridæ*. All the species of the family, the skulls of which I have had an opportunity of examining (and they are numerous, embracing all the known genera and subgenera), are distinguishable by the possession of a distinct post-orbital process to the cranium; they have the palate broad, and terminating in a line with the posterior molars, or behind that line; the molars of

opposite sides of the jaw are parallel, and the ant-orbital opening is small, in the form of a tube, and serves only for the transmission of the infra-orbital nerve. These characters are not found in *Anomalurus*: the post-orbital process is here reduced to a mere rudiment, being represented by an indistinct projection forming an obtuse angle: the ant-orbital opening is large, and evidently affords a passage for a portion of the masseter muscle as well as the nerve; it moreover opens directly in the bony plate which constitutes the anterior root of the zygomatic arch, and is not produced as it were into a tube, as in the typical Squirrels. The palate is narrow, and has a deep triangular emargination behind, the apex of the triangle being on a line with the hinder margin of the penultimate molar. The molar teeth converge in front, so that the space between the two foremost is scarcely equal in width to one of these teeth; the crowns of the molars of opposite sides of the upper jaw, instead of being on the same plane, or very nearly so, are directed obliquely outwards; and the masticating surface of those of the lower jaw, to meet them, incline in an opposite direction. The incisive foramina are longer than is usual in the *Sciuridæ*, and encroach in a slight degree upon the maxillary bones. The nasal portion of the skull is narrower, and the nasal bones are remarkable for a deep emargination in front.

I have been led to institute a comparison between the present animal and the species of the *Sciuridæ*, on account of certain points of resemblance which there exist between it and the Flying Squirrels (*Pteromys*), especially in the possession of the expanded flank and interfemoral membranes. In the almost total absence of post-orbital process, however, and in the comparatively large size of the ant-orbital opening, the *Anomalurus* evinces an approach to the *Myoxidæ*; the approximation is moreover observable in the narrowness of the nasal bones and the slenderness of the zygomatic arch, these parts being compared with those corresponding in the squirrel skull.

The lower jaw is formed like that of the Squirrels, and does not present certain peculiarities observable in the *Myoxus*, viz. that of having the descending ramus perforated, its posterior angle acute, and the upper posterior angle produced.

The incisor teeth are deeper than broad, and almost flat in front.

The molars are permanently, it would appear,  $\frac{4-4}{4-4}$ , for in a skull of a young animal in which but three molars on either side of the jaw are protruded, there is no trace of the small anterior molar so commonly found in the Squirrels. They are very nearly equal in size, and of a quadrate form; the crown of each molar of the upper jaw is slightly indented, both on the outer and inner side, and the posterior inner angle is somewhat produced; in the young animal it is more distinctly produced and is acute, and the outer and inner indentations are scarcely traceable. The molars of the lower jaw have each a strong indentation on the outer side. The folds of enamel cross the crowns of the molars in the transverse direction, and the spaces between the folds (four or three in number) are about equal



in width to these folds. The masticating surfaces of these teeth are worn flat by usage, even in the comparatively young animal, as in other Rodents which have a large ant-orbital opening, and have not the tubercular surface such as we find in the molars of the typical Squirrels. These last-mentioned animals, it would appear, have a rotatory motion of the lower jaw, whilst the *Anomaluri* have a longitudinal, no doubt combined with the rotatory motion; and this difference is perhaps due to the action of that portion of the masseter muscle which passes through the ant-orbital opening.

The apparatus of scales, Mr. Fraser remarked, was used by the animal to support itself when resting on the trees, which it ascends with great agility. He had observed this animal dart from the top of a lofty tree to another at a considerable distance. Descending at an angle, it aimed with great nicety at the trunk of the tree on which it intended to alight, and, settling near the base, it would again ascend to travel to a third tree in the same manner; occasionally, when high up on the trunk, it would rest itself, making use of the singular apparatus of scales on the under side of the tail. The unarmed portion of the tail was then turned backwards and upwards.

Mr. Waterhouse then proceeded to characterize three new species of Squirrels from Mr. Fraser's collection, as follows:—

*SCIURUS STANGERI.* *Sc. pilis longis et rigidis, nigro et flavescentipenicillatis; genis, guld, corporeque subtus pilis sparsè obtectis, his plerumque pallidis; caudâ magnâ, nigro alboque annulatâ; auribus parvulis; foramine infra-orbitali haud in canali educto.*

	unc. lin.	
Longitudo ab apice rostri ad caudæ basin....	12	0
————— <i>caudæ</i> .....	15	0
————— <i>tarsi digitorumque</i> .....	2	8½
————— <i>auris</i> .....	0	5

*Hab.* in Insulâ Fernando Po.

The most striking external characters of this species consist in its large tail, which is ringed with black and white; the crispness of the fur and the seminaked condition of the under parts of the body, the sides of the face, muzzle, throat, and the inner side of the limbs:—all these parts are so sparingly clothed with hairs that the skin is visible. On the upper parts of the body there is scarcely any trace of the finer under-fur, nearly all the hairs being of the same harsh character; they are black, broadly annulated with yellowish white or rusty yellow; on the fore parts of the body the former tint prevails, but the hinder parts may be described as black, freely pencilled with bright rusty yellow; on the hind limbs this last-mentioned colour prevails, as well as on the upper side of the tarsus. The small adpressed hairs on the sides of the face are partly black and partly yellowish white; on the chest the hairs are for the most part whitish, and on the inner side of the limbs rusty yellow; on the belly the hairs are most of them yellowish white, annulated with black. The tail is very long and bushy: measuring to the end of the hair, it exceeds the head and body in length; excepting quite at the base,



where the tail is coloured like the body, all the hairs are black, broadly annulated with white, and the white on the upper surface forms bars or rings; these however become indistinct towards the apex. The ears are of moderate size and rounded. The heel is rather sparingly clothed with hair.

The skull of this animal is remarkable for its oblong-ovate form, and for having the ant-orbital foramen further back than usual; it opens indeed directly into the anterior root of the zygomatic arch, and is not in the form of a longish canal, such as we observe in other Squirrels. The nasal portion of the skull is short and broad, and the nasal bones correspond; the elongated form of the cranium is due to the greatly produced hinder portion: the antero-posterior extent of the extremely oblique bony plate forming the anterior root of the zygomatic arch is great: the post-orbital process is well-developed: the palate terminates very nearly in a line with the hinder part of the posterior molars. The incisive foramina are moderate. The auditory bullæ are rather small. The incisors are strong and very deep from front to back. The molars are small in proportion to the skull. The dimensions of the skull are,

	in. lin.
Total length .....	2 10
Greatest width .....	1 6 $\frac{1}{2}$
Width between orbits .....	0 10 $\frac{1}{2}$
Length from post-orbital process to occiput.....	1 4
—— of palate .....	1 2
—— from front of the incisors to the first molar....	0 11
Longitudinal extent of the four molars.....	0 6
Length of nasal bones .....	0 8 $\frac{3}{4}$

*SCIURUS RUFO-BRACHIATUS.* *Sc. pilis mediocriter longis, subrigidis, nigro et flavescenti-penicillatis; corpore subtus sordide flavo vel rufescenti-flavo; artubus infra rufis; caudâ longâ, non valde floc-cosâ, annulis nigris et albis, vel flavescenti-albis, ornatâ, ad basin plerumque rufescente; auribus parvulis; dentibus incisoribus lon-gitudinaliter subsulcatis.*

	unc. lin.
Longitudo ab apice rostri ad caudæ basin....	8 6
—— caudæ.....	10 6
—— tarsi digitorumque .....	2 1 $\frac{1}{2}$
—— auris .....	0 4 $\frac{1}{2}$

*Hab.* in Insulâ Fernando Po.

This species approaches very nearly to the *Sciurus annulatus* of authors, but is distinguishable by its richer colouring. The general tint of *S. annulatus* might be described as yellowish grey, whilst that of the present animal is rusty grey; and especially by the bright rust-like tint of the under side of the limbs, and the pale rust or rusty white colour of the belly. The heel is clothed with hair.

The dimensions above given being from a skin, can only be regarded as an approximation; judging from the skull, the present species must be much larger than the *Sc. annulatus*. Its form is nearly the same, but the nasal portion is narrower and more elon-

gated, and the post-orbital processes are considerably larger in proportion. The dimensions of the skull are as follows:—

	in.	lin.
Total length.....	2	1½
Greatest width.....	1	2½
Width between orbits.....	0	8⅔
Length from the front of the incisors to the first molar	0	7¼
Length of palate.....	0	10½
Longitudinal extent of the four molars.....	0	5
Length of nasal bones.....	0	8½

SCIURUS ERYTHROGENYS. *Sc. suprâ rufescenti-fuscus, pilis nigro et rufescenti-penicillatis; genis rufis; guld, corpore subtus, et artubus internè albis; caudâ quàm corpus brevior, nigrâ, albo-penicillatâ, pilis ad basin rufescentibus; auribus parvulis.*

	unc.	lin.
Longitudo ab apice rostri ad caudæ basin....	8	6
———— caudæ.....	6	3
———— tarsi digitorumque.....	1	10½
———— auris.....	0	4

*Hab.* in Insulâ Fernando Po.

The bright rust-coloured cheeks, combined with the pure white colour of the under parts of the body and inner side of the limbs, will serve to distinguish this species. The fur is rather short and moderately soft, and on the upper parts of the body the hairs are black (inclining to greyish at the base) and broadly annulated with rich rusty yellow at or near the point. A shortish longitudinal pale mark is observable on each side of the body near the shoulders. The feet are finely pencilled with black and yellowish white. The tail is rather short and not very bushy, above black and rather sparingly pencilled with white; upon separating the hairs, however, they are found to be of a pale rust-colour near the base, and along the mesial portion of the under side the tail is of a bright rusty red colour. The tarsus is naked nearly to the heel, but on the heel are a few hairs.

Mr. Fraser's collection also contained a perfect skin of the *Antelope Ogilbii*, an animal originally described from an imperfect specimen by Mr. Waterhouse in the Society's Proceedings for May 1838, p. 60.

This animal belongs to the same division as the *A. sylvicultrix* of authors, and is apparently equal to that animal in size. As in the species just mentioned, the muzzle is naked, and the horns are placed far behind the eye; they are short, straight (or nearly so) and pointed. Mr. Fraser's notes state that the animal is provided with a gland between the hoofs, and that the female has four teats.

The fur is short, glossy and adpressed, and of a bright rusty red colour, darkish on the back, and paler on the under parts of the body; a black mark runs along the back very nearly to the tail; this mark is broadest towards the shoulders, where its width is about an inch or rather less; over the shoulders it becomes obliterated, blending gradually into the brownish hue which covers those parts and

the neck. The upper surface of the head is of a deep rusty red colour, shading into black at the tip of the muzzle; the sides of the face are yellowish fawn-colour, and the throat is whitish. The ears are of moderate size, broad and somewhat pointed; externally they are clothed with closely adpressed small hairs, which are for the most part of a black colour, but in front at the base they assume a bright rust tint; this is also the colour of the fringe of longish hairs on the anterior margin. About half-way down the fore leg and on the anterior surface some black hairs are observable, intermixed with those of the ordinary colour; these become more numerous lower down and form a mark which becomes gradually broader, and from the front to the hoof it encircles the foot; numerous white hairs are intermixed on this part, and they form a white ring next to the hoof. The hind feet are coloured in the same way.

Mr. Waterhouse then read his description of a species of Cat procured at Sierra Leone.

*FELIS RUTILUS.* *F. pilis brevibus adpressis; corpore suprâ ferrugineo, ad latera indistinctè maculato, maculis parvulis, subtùs albido maculis rufo-nigricantibus ornato; caudâ brevi, immaculatâ, suprâ obscurè rufâ, subtùs pallidiore.*

	unc. lin.
Longitudo corporis circiter .....	36 0
———— caudæ .....	10 0

The skin which furnishes the above characters was procured by Mr. Fraser when at Sierra Leone, and was said to be from the Mandingo country. Unfortunately, like all other skins brought from the interior for sale or barter, it is imperfect, wanting the head and lower part of the limbs. In the shortness of its tail and in its nearly uniform colouring, it approaches the Lynxes. It probably inhabits the mountains.

Imperfect skins of the *Cercopithecus Campbelli* were also procured by Mr. Fraser at the same time; they were likewise said to be from the Mandingo country.

October 11.—R. H. Solly, Esq., in the Chair.

Mr. Gould exhibited and characterized the following thirty new species of Australian Birds:—

*HIRUNDO NEOXENA.* *Hir. fronte, mento, guld, et pectore ferrugineo-rubris; rectricum caudæ (rectricibus duabus intermediis exceptis), pogonio interno obliquè albo notato; corpore suprâ metallicè cæruleo, subtùs pallidè fuscescente.*

Forehead, chin, throat and chest rust-red; head, back of the neck, back, scapularies, wing-coverts, rump and upper tail-coverts deep steel-blue; wings and tail blackish brown; all but the two centre feathers of the latter with an oblique mark of white on the inner web; under surface very pale brown; under tail-coverts pale brown, passing into an irregular crescent-shaped mark near the extremity, and tipped with white; irides dark brown; bill and legs black.

Total length, 6 inches; bill,  $\frac{1}{2}$ ; wing,  $4\frac{5}{8}$ ; tail, 3; tarsi,  $\frac{1}{2}$ .



*Hab.* The whole of the southern coast of Australia and Van Diemen's Land.

Messrs. Vigors and Horsfield considered this species to be identical with the bird figured by Sparmann in the 'Museum Carlsonianum' under the name of *Hirundo Javanica*, which is there represented with a square tail, and which, if drawn correctly, is not only specifically but generically distinct. Those gentlemen likewise considered it to be identical with the *Hirondelle Orientale* of M. Temminck's 'Planches Coloriées,' but from which also I conceive it to be distinct. On the contrary, the swallow figured in Griffith's edition of Cuvier's 'Animal Kingdom' is certainly the Australian bird; but as the specific term there given had been previously employed by Sparmann, as mentioned above, the necessity of a new name for the present bird has been forced upon me; and that of *neoxena* has suggested itself as appropriate, from the circumstance of its appearance throughout the whole of the southern portions of Australia being hailed as a welcome indication of the approach of spring, and its arrival there associated with precisely the same ideas as those popularly entertained respecting our own pretty swallow in Europe. The two species are in fact beautiful representatives of each other, and assimilate not only in their migratory movements, but also most closely in their whole habits, actions and economy.

*COLLOCALIA ARIEL.* *Coll. vertice ferrugineo-rubro, dorso, plumis scapularibus, et alarum tectricibus saturatè metallico-cæruleis, uropygio fulvescenti-albo, tectricibus caudæ fuscis; corpore subtus albo, ferrugineo tincto.*

Crown of the head rust-red; back, scapularies and wing-coverts deep steel-blue; wings and tail dark brown; rump buffy white; upper tail-coverts brown; under surface white, tinged with rust-red, particularly on the sides of the neck and flanks; the feathers of the throat with a fine line of dark brown down the centre; irides blackish brown; bill blackish grey; legs and feet olive-grey.

Total length, 4 inches; bill,  $\frac{3}{8}$ ; wing,  $3\frac{3}{4}$ ; tail,  $1\frac{7}{8}$ ; tarsi,  $\frac{1}{2}$ .

*Hab.* The southern portions of Australia.

*DICRURUS BRACTEATUS.* *Dic. corpore suprâ et infrâ saturatè nigro; plumis capitis lunulâ metallico-viridi, illis corporis præsertim pectoris guttâ ejusdem splendoris, ad apicem bracteatis.*

Head, body above and below deep black; the feathers of the head with a crescent, and the feathers of the body, particularly of the breast, with a spot of deep metallic green at the tip; wings and tail deep glossy green; under wing-coverts black, tipped with white; irides brownish red; bill and feet blackish brown.

Total length,  $10\frac{1}{2}$  inches; bill,  $1\frac{3}{8}$ ; wing, 6; tail,  $5\frac{1}{2}$ ; tarsi,  $\frac{7}{8}$ .

*Hab.* The eastern and northern coasts of Australia.

*Syn.* *Dicurus balicassius*, *Vig. & Horsf.*, but not of *Lath.*

*RHIPIDURA DRYAS*, Gould. *Rhipi. fronte, dorso inferiore, tectricibusque caudæ ferrugineis; caudâ fusciscenti-cinerea, rectricibus duabus intermediis ad apicem obscurè albo notatis, reliquis per partem apicalem tertiam albis.*

Forehead rust-red; crown of the head, back of the neck, upper part of the back and the wings olive-brown; lower part of the back and upper tail-coverts rust-red; tail brownish grey, the two centre feathers obscurely tipped with white, and the remainder white for one-third of their length from the tip; throat white; ear-coverts dark brown; chest black, the feathers being edged with white as they pass on to the abdomen, which is wholly white; flanks and under tail-coverts very faintly tinged with buff; irides blackish brown; bill black; feet dark brown.

Total length,  $5\frac{7}{8}$  inches; bill,  $\frac{5}{8}$ ; wing,  $2\frac{5}{8}$ ; tail,  $3\frac{3}{4}$ ; tarsi,  $\frac{5}{4}$ .

This species is nearly allied to *Rhipidura rufifrons*, but differs in being much smaller, in the red not extending on to the plumes and shafts of the tail-feathers, and in there being more white on their extremities.

*Hab.* Port Essington, north coast of Australia.

*MICRÆA FLAVIGASTER.* *Mic. corpore superiore fuscescenti-olivaceo; alis caudaque fuscis, colore pallidiorum plumis marginatis; gula alba, corpore inferiore flavo.*

All the upper surface brownish olive; wings and tail brown, margined with paler brown; throat white; all the under surface yellow; irides dark brown; bill blackish brown; feet blackish grey.

Total length,  $3\frac{3}{8}$  inches; bill,  $\frac{5}{8}$ ; wing,  $2\frac{7}{8}$ ; tail,  $2\frac{1}{4}$ ; tarsi,  $\frac{1}{2}$ .

*Hab.* Port Essington.

*GERYGONE\* MAGNIROSTRIS.* *Ger. corpore suprâ fusco, infrâ albo; primariis levitèr olivaceo-marginatis; caudâ propè apicem indistinctè fuscescenti-nigro vittatâ.*

All the upper surface brown; margins of the primaries slightly tinged with olive; tail-feathers crossed near the extremity by an indistinct broad band of brownish black; all the under surface white, tinged with brownish buff; irides light brown; bill olive-brown; the base of the lower mandible pearl-white; feet greenish grey.

Total length,  $3\frac{3}{4}$  inches; bill,  $\frac{9}{16}$ ; wing,  $2\frac{1}{4}$ ; tail,  $1\frac{7}{8}$ ; tarsi,  $\frac{5}{8}$ .

*Hab.* Port Essington.

*GERYGONE CHLORONOTUS.* *Ger. capite et nuchâ fuscescenti-cinereis; dorso, alarum tectricibus, uropygio, tectricibus caudæ, remigum primorum marginibus, et per partem dimidiam basalem marginibus caudæ rectricum nitidè olivaceo-viridibus; corpore subtùs, lateribus, crissoque olivaceo-flavis.*

Head and back of the neck brownish grey; back, wing-coverts, rump, upper tail-coverts, margins of the primaries, and the margins of the basal half of the tail-feathers, bright olive-green; primaries and tail-feathers brown, the latter becoming much darker towards the extremity; under surface white; sides and vent olive-yellow; irides wood-brown; upper mandible greenish grey; lower mandible white; feet blackish grey.

\* *Psilopus* of the former parts of these 'Proceedings,' and for which the term *Gerygone* is now substituted, the former term having been previously employed.

Total length,  $3\frac{1}{2}$  inches; bill,  $\frac{9}{16}$ ; wing,  $2\frac{1}{8}$ ; tail,  $1\frac{3}{8}$ ; tarsi,  $\frac{5}{8}$ .

*Hab.* Port Essington.

GERYGONE LEVIGASTER. *Ger. corpore superiore ferrugineo-fusco; inferiore albo, levitèr flavido tincto.*

A narrow obscure line, commencing at the nostrils and passing over the eye, yellowish white; all the upper surface rusty brown; primaries brown, margined with lighter brown; tail whitish at the base, gradually deepening into nearly black, the lateral feather largely, and the remainder, except the two middle ones, slightly tipped with white; all the under surface white, slightly washed with yellow; irides light reddish brown; bill olive-brown; base of lower mandible light ash-grey; feet dark greenish grey.

Total length,  $3\frac{3}{8}$  inches; bill,  $\frac{1}{2}$ ; wing, 2; tail,  $1\frac{1}{2}$ ; tarsi,  $\frac{3}{4}$ .

*Hab.* Port Essington.

For a new form, nearly allied to *Gerygone*, Mr. Gould proposed the generic name of *Smicrornis*, with the following characters:—

*Gen. Char.*—*Rostrum* parvulum, et instar grani tritici; ferè cylindraceum; a basi incurvatum. *Nares* basales oblongæ, et operculo obtectæ; ad basin rostri, pili tenuissimi admodum pauci. *Alæ* modicè longæ, alula brevissima, primariæ tertia, quarta, et quinta longissimæ, et inter se ferè æquales. *Cauda* brevis, et quadrata. *Tarsi* modici; digiti perbreves; digitus posticus cum intermedio ferè cœqualis. *Ungues* admodum adunci, et ad hærendum aptati.

SMICRORNIS FLAVESCENS. *Smic. corpore superiore nitidè flavescenti-olivaceo, plumis capitis strigè fuscà ferè obsoletà longitudinaliter notatis, corpore inferiore nitidè flavo.*

All the upper surface bright yellowish olive; the feathers of the head with an indistinct line of brown down the centre; wings brown; tail brown, deepening into black near the extremity, and with a large oval spot of white on the inner web, near the tip of all but the two central feathers; all the under surface bright yellow.

Total length,  $2\frac{3}{4}$  inches; bill,  $\frac{5}{16}$ ; wing,  $1\frac{7}{8}$ ; tail,  $1\frac{1}{4}$ ; tarsi,  $\frac{9}{16}$ .

*Hab.* Port Essington.

PACHYCEPHALA FALCATA, Gould. *Pach. vertice, loris, plumis auricularibus, dorso, caudæque tectricibus cinereis; guld albâ, lunulâ nigra infrâ circumdatâ.*

*Adult male.*—Crown of the head, lores, ear-coverts, back and upper tail-coverts grey; wings dark brown, all the feathers margined with grey; throat white, bounded below by a distinct crescent of black; abdomen, flanks, and under tail-coverts orange-brown; tail dark brown; the basal portion of the webs edged with grey; irides reddish brown; bill black; feet blackish brown.

Total length,  $5\frac{3}{4}$  inches; bill,  $\frac{3}{4}$ ; wing,  $3\frac{1}{2}$ ; tail,  $2\frac{7}{8}$ ; tarsi,  $\frac{3}{4}$ .

*Adult female.*—Crown of the head and all the upper surface grey; ear-coverts brownish grey; throat buffy white, passing into light buff or fawn-colour on the chest, flanks, abdomen, and under tail-coverts; the feathers of the throat and chest with a narrow dark line down the centre; wings and tail as in the male.



Total length,  $5\frac{1}{2}$  inches; bill,  $\frac{5}{8}$ ; wing,  $3\frac{1}{2}$ ; tail,  $2\frac{3}{4}$ ; tarsi,  $\frac{3}{4}$ .

*Young male*.—Similar in colour to the female, but with the throat whiter and the markings on the chest much more distinct, and extending over the abdomen also.

Nearly allied to *Pachycephala pectoralis*, but differs in being rather smaller, and in having no black round the eyes or on the ear-coverts.

*Hab.* Port Essington.

*PACHYCEPHALA MELANURA.* *Pach. capite, lunulâ pone oculos, per latera colli ductâ et pectus transeunte, caudâque nigris; gulâ albâ, torque nuchali, corporeque subtus, saturatè flavis.*

Head, crescent commencing behind the eye and crossing the chest, and the tail black; throat pure white; collar round the back and sides of the neck, and all the under surface very rich gamboge-yellow; upper surface rich yellowish olive; wings black; the coverts margined with yellowish olive; the primaries narrowly and the secondaries broadly margined with yellowish grey; bill and feet black; irides brown.

Total length, 6 inches; bill,  $\frac{7}{8}$ ; wing,  $3\frac{1}{4}$ ; tail,  $2\frac{1}{2}$ ; tarsi,  $\frac{7}{8}$ .

*Hab.* North coast of Australia.

*PACHYCEPHALA SIMPLEX.* *Pach. corpore superiore fusco, inferiore fuscescenti-albo, singulis plumis strigâ fuscâ ferè obsoletâ longitudinaliter notatis.*

All the upper surface brown; all the under surface brownish white, with a very faint stripe of brown down the centre of each feather; irides light brown; bill and feet black.

Total length, 5 inches; bill,  $\frac{5}{8}$ ; wing,  $2\frac{7}{8}$ ; tail,  $2\frac{3}{8}$ ; tarsi,  $\frac{5}{8}$ .

*Hab.* Port Essington.

Mr. Gould then mentioned, that having obtained another species of the same form as the *Acanthiza pyrrhopygia* of Messrs. Vigers and Horsfield, which latter differs considerably from the other members of that group, he proposed to form the two birds into a new genus, under the name of *Hylacola*, with the following characters:—

#### Genus HYLACOLA.

*Gen. Char.*—*Rostrum* capite brevius, compressum, ad basin æquè altum atque latum; *culmen* gradatim ad apicem mandibulæ superioris declivè; apex levitè emarginatus; *rictus* vibrissis raris instructus. *Nares* basales, oblongæ, magis grandes, et operculo tectæ. *Alæ* breves, admodum rotundatæ concavæ; *primariæ* prima, secunda et tertia, longitudine dissimili, quarta, quinta, et sexta cœquales, et longissimæ. *Cauda* magis elongata, et rotundata. *Tarsi* mediocres. *Digiti* magis elongati; externi cœquales.

*Typus*, *Acanthiza pyrrhopygia*, Vig. and Horsf.

*HYLACOLA CAUTA.* *Hyl. lined albâ per faciem super oculos ductâ vertice, corporeque superiore fuscis; caudæ tectricibus crissoque pallidè castaneis; alarum tectricibus fuscis, fuscescenti-albo marginatis, primariis fuscis, pogoniis externis ad basin conspicuè albis.*

At the base of the upper mandible a line of white, which con-

tinues along the side of the face and over the eye; above this a narrow line of black; crown of the head and all the upper surface brown; upper and under tail-coverts bright chestnut; wing-coverts brown, edged with brownish white; primaries brown, with the outer web at the base white, forming a conspicuous spot in the centre of the wing; tail blackish brown, tipped with white; throat striated with black and white, produced by each feather being fringed with white, and having a strong stripe of black down the centre; flanks mottled brown and white; abdomen white; bill dark brown; irides buff-white; feet flesh-brown.

Total length,  $5\frac{5}{8}$  inches; bill,  $\frac{9}{16}$ ; wing,  $2\frac{1}{8}$ ; tail,  $2\frac{1}{2}$ ; tarsi,  $\frac{7}{8}$ .

*Hab.* Western Belts of the Murray in South Australia.

*CINCLORAMPHUS CANTATORIS.* *Cinc. corpore superiore arenaceo-fusco, colore plumarum centrali saturatiore, notâ antè oculos triangulari fuscescenti-nigrâ; gula et pectore sordidè albis, hujus plumis strigâ fuscâ longitudinaliter notatis, corpore inferiore pallidè fusco, abdomine medio saturatè fusco.*

All the upper surface sandy brown, the centres of the feathers darker; primaries and tail greyish brown, slightly margined with reddish brown; immediately before the eye a triangular spot of brownish black; throat and chest dull white, the latter with a stripe of brown down each feather; under surface light brown; in the centre of the abdomen a patch of dark brown, each feather margined with pale brown; bill and feet fleshy brown.

Total length, 8 inches; bill,  $1\frac{1}{8}$ ; wing,  $4\frac{1}{8}$ ; tail,  $4\frac{1}{8}$ ; tarsi,  $1\frac{1}{2}$ .

*Hab.* South Australia.

*PTILOTIS FLAVA.* *Ptil. corpore superiore, alis, caudâque olivaceo-flavis; corpore inferiore lucidè ejusdem coloris.*

All the upper surface, wings and tail olive-yellow; inner webs of the primaries brown; all the under surface bright olive-yellow; bill blackish brown; feet reddish flesh-brown.

Total length,  $6\frac{1}{4}$  inches; bill,  $\frac{7}{8}$ ; wing,  $3\frac{1}{4}$ ; tail,  $3\frac{1}{4}$ ; tarsi,  $\frac{5}{4}$ .

*Hab.* North coast of Australia.

*PTILOTIS VERSICOLOR.* *Ptil. corpore superiore fuscescenti-olivaceo, plumis flavescanti-olivaceo marginatis, alis caudâque subtùs luteolis; strigâ superoculari nigrâ; plumis auricularibus saturatè cinereis; strigâ infra-auriculari nitidè flavâ, gula et corpore subtùs flavis, singulis plumis strigâ fuscâ longitudinaliter notatis; crisso pallidior.*

All the upper surface brownish olive, tinged with yellowish olive on the margins of the feathers; outer webs of the primaries and tail wax-yellow; inner webs brown; under surface of the wing and tail yellowish buff; stripe over the eye to the back of the neck black; ear-coverts dark grey; below the ear-coverts a stripe of bright yellow; throat and under surface yellow, becoming paler as it approaches the vent, each feather with a stripe of brown down the centre.

Total length, 8 inches; bill, 1; wing, 4; tail,  $3\frac{3}{4}$ ; tarsi, 1.

*Hab.* North coast of Australia.

*PTILOTIS UNICOLOR.* *Ptil. loribus et orbitis saturatè fuscis; colore*

*corporis fuscescenti-olivaceo, apud partes inferiores pallidiore; primariis clariore marginatis; humeris internis luteolis.*

Lores and orbits deep brown; all the plumage brownish olive; the under surface paler than the upper; primaries margined with brighter olive than the other parts of the body; under surface of the shoulder pale buff; irides obscure red; bill dark olive-brown; naked gape fleshy white, passing into yellow at the corner of the mouth; legs and feet light ash-grey.

*Male*.—Total length, 7 inches; bill, 1; wing,  $3\frac{3}{4}$ ; tail,  $3\frac{1}{4}$ ; tarsi, 1.

*Hab.* Port Essington.

The sexes are alike in colour, but the female is considerably smaller in size.

MYZOMELA OBSCURA. *Myz. colore corporis sordidè fusco, apud partes inferiores pallidiore, et ad caput tincturâ vinaced.*

The whole of the plumage dull brown, with a vinous tinge on the head; paler on the under surface; irides bright red; bill dark greenish black; feet dark bluish grey; tarsi tinged with yellow.

*Male*.—Total length, 5 inches; bill,  $\frac{3}{4}$ ; wing,  $2\frac{3}{4}$ ; tail,  $2\frac{1}{4}$ ; tarsi,  $\frac{5}{8}$ .

*Hab.* Port Essington.

The sexes differ only in the female being much smaller in size.

GLYCIPHILA FASCIATA. *Glyc. vertice fuscescenti-nigro, plumis ad apicem lunulâ parvulâ albâ ornatis; uropygio rufo tincto, faciei lateribus, gulâ et corpore subtus albis, ab angulis oris strigâ angustâ fuscescenti-nigrâ per latera colli ductâ; pectore lineis semicircularibus fuscescenti-nigris transversim fasciato-lateribus et crisso luteolis, laterum plumis strigâ centrali fuscescenti-nigrâ longitudinalitèr notatis.*

Crown of the head brownish black, with a small crescent of white at the extremity of each feather; feathers of the back very dark brown, margined with buffy brown; rump tinged with rufous; wings and tail dark brown, fringed with light brown; sides of the face, throat, and under surface white; from the angle of the mouth down the side of the neck a narrow stripe of brownish black; chest crossed by a number of semicircular brownish black fasciæ; flanks and under tail-coverts buff, the former with a stripe of brownish black down the centre; irides reddish brown; bill greenish grey; feet aurora-red.

Total length,  $4\frac{3}{4}$  inches; bill,  $\frac{5}{8}$ ; wing,  $2\frac{7}{8}$ ; tail,  $2\frac{1}{8}$ ; tarsi,  $\frac{5}{8}$ .

*Hab.* Port Essington.

ENTOMOPHILA? RUFOGULARIS. *Ent. capite et corpore superiore fuscis; primariis et caudæ rectricibus, externè colore cerino marginatis, gulâ ferrugined.*

Head and all the upper surface brown; wings and tail darker brown; primaries, secondaries and tail-feathers margined externally with wax-yellow; throat rust-red; sides of the head and all the under surface very pale brown; bill and feet dark purplish brown.

Total length,  $4\frac{3}{4}$  inches; bill,  $\frac{1}{2}$ ; wing,  $2\frac{3}{4}$ ; tail,  $2\frac{1}{8}$ ; tarsi,  $\frac{5}{8}$ .

*Hab.* North coast of Australia.

ENTOMOPHILA? ALBOGULARIS. *Ent. capite saturatè cinereo, corpore superiore fusco; alis caudâque saturatioribus; primariis,*



*secundariis, reatricibusque caudæ per partem basalem dimidiam cerino marginatis; gulâ alba, pectore et lateribus e rubro-luteolis; abdomine medio, et crisso albis.*

Head dark grey; all the upper surface brown; wings and tail darker brown; primaries, secondaries, and basal half of the tail-feathers margined with wax-yellow; throat pure white; chest and flanks reddish buff; centre of the abdomen and under tail-coverts white; irides bright reddish brown; bill blackish grey; feet bluish grey.

Total length,  $4\frac{1}{2}$  inches; bill,  $\frac{5}{8}$ ; wing,  $2\frac{3}{8}$ ; tail, 2; tarsi,  $\frac{3}{4}$ .

The female is similar, but much less brilliant in colour than her mate.

*Hab.* Port Essington.

**CALYPTORHYNCHUS MACRORHYNCHUS.** *Cal. mas fulgidè e cæruleo-niger, reatricibus caudæ tribus externis (externæ pogonio externo excepto) ferè apud medium vittâ latâ pulchrè coccinèâ fasciatis.*

*Fœm. a mari differt plumis cristæ, laterum capitis, tectricumque alarum flavido-guttatis, singulis plumis corporis inferioris, et præsertim pectoris fasciis nonnullis luteolis ornatis; reatricibus caudæ tribus externis subtùs, crebrè et irregularitèr flavido-fasciatis; suprà ad basin fasciis nitidè flavis ad basin, exinde ad apicem palidè coccineis notatis.*

*Male.*—The whole of the plumage glossy bluish black; lateral tail-feathers, except the external web of the outer one, crossed by a broad band of fine scarlet; bill horn-colour; irides blackish brown; feet mealy blackish brown.

*Female.*—General plumage as in the male, but with the crest-feathers, those on the sides of the face and neck, and the wing-coverts, spotted with light yellow; each feather of the under surface, but particularly the chest, crossed by several semicircular fasciæ of yellowish buff; lateral tail-feathers crossed on the under surface by numerous irregular bands of dull yellow, which are broad and freckled with black at the base of the tail, and become narrower and more irregular as they approach the tip; on the upper surface of the tail these bands are bright yellow at the base of the feathers, and gradually change into pale scarlet as they approach the tip; irides blackish brown.

Total length, 2 inches; bill,  $1\frac{1}{2}$  in length and 3 in depth; wing, 16; tail, 12; tarsi, 1.

*Hab.* Port Essington.

**CACATUA SANGUINEA.** *Cac. corpore albo, plumis faciei, ad basin sanguineo-tinctis; primariis, secundariis et reatricibus caudæ, cum pogoniis internis ad basin sulphureis.*

All the plumage white; base of the feathers of the lores and sides of the face stained with patches of blood-red; base of the inner webs of the primaries, secondaries and tail-feathers fine sulphur-yellow; bill yellowish white; feet mealy brown.

Total length, 15 inches; bill,  $1\frac{1}{8}$ ; wing,  $10\frac{3}{8}$ ; tail, 6; tarsi,  $\frac{7}{8}$ .

*Hab.* North coast of Australia.

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**CLIMACTERIS MELANURA**, Gould. *Clim. fronte, corpore superiore, rectricibusque caudæ ex holoserico fuscescenti-nigris; occipite et nuchâ ferrugineo-tinctis; primariis et secundariis ad apicem et basin saturatè fuscis; plumis gularibus albis nigro-marginatis; abdomine et lateribus ferrugineis; crisso nigro.*

Forehead, all the upper surface and tail-feathers velvety brownish black; the occiput and back of the neck stained with ferruginous brown; primaries and secondaries dark brown at the base and at the tip; the intermediate space buff, forming a conspicuous band across the wing when expanded; feathers of the throat white, edged all round with black, giving the throat a striated appearance; abdomen and flanks ferruginous brown; under tail-coverts black, irregularly crossed with bars of buff; bill and feet blackish brown.

Total length,  $6\frac{3}{4}$  inches; bill,  $\frac{7}{8}$ ; wing, 4; tail, 3; tarsi, 1.

In size this species rather exceeds the *Climacteris scandens*.

*Hab.* The north-west coast of Australia.

From the collection of Mr. Bynoe.

**PORZANA FLUMINEA**. *Porz. corpore superiore olivaceo; singulis plumis strigâ centrali nigrescente, et ad marginem guttis duabus albis anticè et posticè nigro-cinctis, ornatis; facie, guld, pectore et abdomine superiore plumbeo-cinereis, abdomine imo, et lateribus cinerescenti-nigris, lineis albis angustis irregularitèr fasciatis.*

All the upper surface olive, with a broad stripe of blackish brown down the centre and two oval spots of white, bounded above and below with black on the margin of each web of every feather; primaries and secondaries brown; tail dark brown, margined with lighter brown and with an indication of white spots on the extreme edge; face, throat, chest, and upper part of the abdomen dark slate-grey; lower part of the abdomen and flanks greyish black, crossed by narrow irregular bars of white; under tail-coverts white; bill orange-red at the base, and dark olive-green for the remainder of its length; feet dark olive-green.

Total length, 7 inches; bill,  $\frac{7}{8}$ ; wing,  $3\frac{5}{8}$ ; tail,  $1\frac{3}{4}$ ; tarsi, 1.

*Hab.* New South Wales.

**PORZANA PALUSTRIS**. *Porz. capite et nuchâ ferrugineo-fuscis, singulis plumis longitudinalitèr strigâ centrali nigrescenti-ornatis; plumis dorsalibus scapularibus, et secundariis fuscescenti-nigris, rufescente marginatis, et strigâ oblongâ albâ nigro interruptâ ornatis; guld, pectore, et abdomine superiore cinereis; abdomine imo et lateribus nigrescentibus lineis latis irregularibus cinereis fasciatis.*

Head and back of the neck rusty brown, with a stripe of blackish brown down the centre of each feather; feathers of the back, scapularies and secondaries brownish black margined with rusty brown, and with an oblong stripe or mark of white, interrupted in the middle with black; wing-coverts rusty brown, a few of them marked on their inner webs like the scapularies; primaries brown, two or three of the innermost with a mark or marks of white at the tip; tail dark brown, fringed with rusty brown; face, throat, chest and upper part

of the abdomen grey; lower part of the abdomen and flanks blackish grey, crossed by broad irregular bands of grey; bill and feet olive-brown.

Total length, 6 inches; bill,  $\frac{5}{4}$ ; wing, 3; tail,  $1\frac{1}{2}$ ; tarsi, 1.

*Hab.* Van Diemen's Land.

*STERNA VELOX.* *Stern. fronte, loris, colli lateribus, et corpore inferiore albis; spatio circumoculari, occipite et nuchâ nigris; corpore superiore, alis, caudâque bellè cinereis.*

Forehead, lores, sides of the neck, and all the under surface white; space surrounding the eye, occiput, and back of the neck black; all the upper surface, wings and tail delicate grey; outer web of the external quill greyish black; shafts of all the primaries white; irides blackish brown; bill black.

Total length, 13 inches; bill,  $2\frac{1}{8}$ ; wing,  $9\frac{3}{4}$ ; tail,  $6\frac{1}{4}$ ; tarsi,  $\frac{3}{4}$ .

*Hab.* Bass's Straits.

*HYDROCHELIDON FLUVIATILIS.* *Hyd. fronte, vertice, et nuchâ nigris; corpore superiore, alis caudâque pallidè cinereis; facie et gula albis, hâc colore gradatim ad pectus cinerescente, et hâc ad abdomen necnon ad latera nigrescente.*

Forehead, crown and nape deep black; all the upper surface, wings and tail light grey; sides of the face and the throat white, gradually deepening into grey on the chest, and the grey into black on the abdomen and flanks; under surface of the shoulder and under tail-coverts white; irides black; bill blood-red; feet light blood-red.

Total length,  $9\frac{3}{4}$  inches; bill,  $1\frac{5}{8}$ ; wing,  $8\frac{3}{4}$ ; tail,  $3\frac{1}{4}$ ; tarsi,  $\frac{7}{8}$ .

*Hab.* Rivers and lakes of the interior of New South Wales.

*THALASSEUS TORRESII.* *Thal. fronte, facie, et collo dorso superiore, partibusque inferioribus lucidè albis; plumis verticis et illis oculos circumdantibus albis, guttâ parvulâ centrali nigrâ notatis; occipite et nuchâ nigerrimis; dorso alisque saturatè cinereis, caudâ pallidè cinereâ.*

Forehead, sides of the face and neck, upper part of the back and all the under surface silky white; feathers of the crown and surrounding the eye white, with a minute spot of black in the centre of each; occiput and back of the neck black; back and wings deep grey; tail grey; primaries greyish black, broadly margined on their inner web with white; the shafts white; irides dark brown; bill ochre-yellow; feet blackish grey.

Total length,  $13\frac{1}{2}$  inches; bill,  $2\frac{3}{4}$ ; wing,  $11\frac{1}{2}$ ; tail,  $4\frac{3}{4}$ ; tarsi, 1.

*Hab.* Port Essington.

Nearly allied to *S. poliocerca*, but much smaller in size.

*STERNULA NEREIS.* *Stern. vertice et nuchâ nigris, hâc colore oculos cingente maculamque anteriorem efficiente, ut non in frontem ducto; fronte albo; dorso alisque bellè ex argenteo-cinereis; corpore inferiore, uropygio et caudâ albis.*

Crown of the head and back of the neck black, which colour extends round the eye, and is continued in the form of a spot before that organ; but this colour does not extend on to the forehead, which is white; back and wings delicate silvery grey; the outer web of the



external primary dark grey at the base, gradually passing into grey towards the tip; all the under surface, rump and tail pure white; irides black; bill, tongue and feet rich orange-yellow.

Total length,  $10\frac{1}{2}$  inches; bill,  $1\frac{5}{8}$ ; wing,  $7\frac{1}{2}$ ; tail,  $4\frac{1}{4}$ ; tarsi,  $\frac{9}{16}$ .

*Hab.* Bass's Straits.

#### BOTANICAL SOCIETY OF LONDON.

May 19, 1843.—J. E. Gray, Esq., F.R.S. &c., President, in the Chair.

Mr. A. Henfrey, A.L.S., exhibited specimens of *Leucojum aestivum*, collected in Greenwich Marshes. He also presented specimens of *Dentaria bulbifera*, collected at Harefield, Middlesex.

Mr. W. Andrews presented specimens of varieties of *Saxifraga Geum*, in one of which the nectaries thickly surrounded the ovary. The specimens were collected at the Great Blasquest Island, coast of Kerry, Ireland.

Read, "Notice of the discovery of two species of Fungi new to the British Flora," by Dr. Philip, Buenos Ayres: *Peziza corticalis*, found on woodbine between Stokenchurch, Oxfordshire, and Cadmore End; *Hystericum rubrum*, found on bean-stalks at Aston Rowant and Tetsworth, Oxfordshire.

Read also the commencement of a paper by Mr. Edwin Lees, F.L.S., "On the Groups into which the British Fruticose *Rubi* are divisible." The paper was accompanied by drawings and specimens.

June 2.—John Reynolds, Esq., Treasurer, in the Chair.

Mrs. M. Stovin presented specimens of *Anemone ranunculoides*, found *wild* in a wood near Worksop, Nottinghamshire.

Mr. F. Bainbridge presented a specimen of *Lecidea Wahlenbergii* (Acharius), a lichen new to the British flora, discovered by him on Ben Nevis, Inverness-shire, in July last.

The continuation of the paper (commenced at the last Meeting), "On the Groups into which the British Fruticose *Rubi* are divisible," by Mr. Edwin Lees, F.L.S., was read.

The only European forms of the common fruticose brambles noticed by Linnaeus were *R. caesi* and *R. fruticosus*, supposed to include the rest. Sir J. E. Smith, in the 'English Botany,' distinguished *R. corylifolius* as worthy of enumeration, and Anderson, in the Transactions of the Linnæan Society, vol. xi., described the still more obvious *R. suberectus*. Meantime Weihe and Nees von Esenbeck commenced the publication of an elaborate monograph of the genus, under the title of 'Rubi Germanici.' In Smith's 'English Flora' the number of species of British *Rubi* is advanced to eleven, though two of these appear to have been misunderstood, and therefore the real number was only nine.

Before the *Rubi* can be adequately comprehended, so as to reduce them into groups, their mode of growth must be fully understood, and it will perhaps become evident what points, from their greater permanency, are to be relied upon for general as well as specific characters. The general idea of the *biennial* continuance of the

*Rubi* is incorrect; all are *triennial* by the renewed growth of smaller flowering branches from the barren stems or the bases of the withered panicles of the second year, or by the barren stems shooting forth a *second* crop of barren stems, which flower the *third* year; and often the existence of an individual bramble, independent of fresh shoots from the root, is protracted to the fourth or fifth year.

The consequence of this is, that no specific distinction whatever can be drawn from the inflorescence, which may be long the second year and is much shorter the third; while it often happens, that when a barren stem becomes prostrate, the panicles of flowers rising from the extreme end are twice or thrice as long as those nearest to the main shrub. This fact of the extended growth of the *Rubi* has been lost sight of, and hence puzzling productions have been considered as new species, just as *R. fastigiatus* of Weihe and Nees is but a form of *R. plicatus*, as now admitted by Esenbeck himself, from its exhibiting a smaller growth of third year's flowers.

Undoubtedly the *barren stem* offers the best, if not the only plan of discrimination in subdividing the *Rubi* into groups, especially if we take into consideration, in combination with it, the *erect* or *arched* mode of growth and continuance of vitality. The leaves are so exceedingly variable in shape, size, and hoariness, as to be almost useless in this respect. From the table accompanying the paper was seen what the differences really were by which groups can be defined, and it will appear in fact that this resolves itself almost entirely into the *perfect smoothness*, *glaucosity*, or more or less *hairiness* and *glandulosity* of the barren stems.

Commencing then with *R. cæsius* and ending with *R. idæus*, it will appear that *seven* groups are easily separable from each other, and passing from one into the other in a very natural manner. These, at all events, may be considered the *smallest number of species* into which our *Rubi* can be classed, without confounding really different things; while if we proceed further into minuter distinctions, these typical forms will become *groups*, under which the various varieties, species, or subspecies, of each will be referable.

1. *Cæsii*. Having the barren stem round, bloomy, covered with unequal prickles, trailing, rooting. *R. cæsius* and its various derivatives.
2. *Glandulosæ*. Barren stem angular, hairy and prickly, setose, very glandular, arched or trailing, rooting. This group will include *R. radula* of Weihe and Nees, *R. Kœhleri*, *fusco-ater*, &c.
3. *Villicaulæ*. Barren stem angular, very hairy, but without glands, prickly, arched or decumbent, rooting. Including *R. villicaulis*, Weihe and Nees; *R. leucostachys*, Smith, &c.
4. *Fruticosi*. Barren stem angular, glaucous, prickly, arching, rooting. Including *R. fruticosus* and *discolor*.
5. *Nitidi*. Barren stem angular, almost smooth, with few prickles, rooting rarely. *R. affinis*, *nitidus*, *rhamnifolius*, &c.
6. *Suberecti*. Barren stem angular, very smooth, nearly erect, not rooting. Including *R. suberectus*, Anderson and Smith; *R. plicatus*, Weihe and Nees; and *R. fissus*, Lindley.

7. *Idæi*. Barren stem round, downy, covered with innumerable small dilated prickles, erect. *R. idæus* and varieties.

There is, however, it must be admitted, an anomaly in the first group, which can only be got over by subdividing it into two (as in the tabular view), for the excessively glandulose assurgent stem of *R. dumetorum* has a very different aspect from the prostrate *bloomy* one of *R. cæsius*, and yet it is demonstrable that the former is really derivable from the latter; so that although the blue berries of the dewberry would at first sight appear so discriminative, varieties arise with fruit altogether of a different aspect. It must be borne in mind, however, that this is in a great degree in accordance with the well-known laws of cultivation. *R. dumetorum* is *cæsius* excessively developed in leaves and flowers, but the fruit is mostly abortive or imperfect; while *R. cæsius*, in its normal prostrate form, with thin foliage and small flowers, produces on the humid ground the finest and most palatable fruit of any of the fruticose brambles.

The first group of *Cæsii* must therefore necessarily be divided into *two*, but the other groups will be found to maintain the characters assigned them pretty correctly, and may therefore be depended on. It is true that occasionally some of the *Villicaulæ* will exhibit a few glands on their stems or panicles under circumstances of great luxuriance of growth or exposure, but nothing to compare with the excessive glandulosity of the *Glandulosæ*. Then it is true that the barren stem of the second group of *Cæsii* is nearly as glandular as the *Glandulosæ*, but the former will show their affinity with *cæsius* by the calyx being *involute* on the fruit, not *reflex*, as in the latter. The *Fruticosi* always preserve an independent marked character; and the *Nitidi*, if in one of their forms, *R. affinis*, coming near to the *Suberecti*, may yet be always well distinguished by the arching barren stem, which, where exposed, is very stiff and rigid in the latter, almost as much so as in *R. idæus*. This is well observable in the barren moors of North Wales. The paper was accompanied by drawings and specimens.

#### GEOLOGICAL SOCIETY.

February 1, 1843.—Letter from J. Hamilton Cooper, Esq., to Charles Lyell, Esq., V.P.G.S., “On Fossil bones found in digging the New Brunswick Canal in Georgia.”

Mr. Cooper prefaces his communication by a description of the country surrounding the locality in which the bones were found. The portion described is that part of the sea-coast of Georgia which lies between the Alatamaha and Turtle rivers in one direction, and the Atlantic Ocean and the head of tide water on the other. For twenty miles inland the land is low, averaging a height of from ten to twenty feet, and reaching, in some instances, forty feet, and consisting of swamps, salt-marshes, sandy land, and clay loam. It then suddenly rises to the height of seventy feet, and runs back west at this elevation about twenty miles, at which point there is a similar elevation of between sixty and seventy feet. The whole of this district is a post-tertiary formation, and is composed of recent allu-



vium, and a well-characterized marine post-pliocene deposit. The recent alluvium is divided into inland-swamp, tide-swamp, and salt-marsh. The two last occupy a shallow basin having a depth of about twelve feet, the bottom and sides of which are the post-pliocene formation. This the author divides into three groups, in the last of which, constituting the elevated sand hills, no organic remains have been found; in the two former marine shells of existing species occur.

The fossil bones of the land mammalia discovered by Mr. Cooper, were found resting on the yellow sand and enveloped in the recent clay alluvium. Their unworn state and the grouping together of many bones of the same skeleton, render it highly probable that the carcasses of the animals falling or floating into a former lake or stream, sank to the sandy bottom, and were gradually covered to their present depth by the sedimentary deposits from the water. Among them were remains of the megatherium, *Mastodon giganteum*, mammoth, hippopotamus and horse. The fossil shells found in the post-pliocene, were species at present existing on the neighbouring shores.

The facts narrated by Mr. Cooper lead to the following conclusions:—1st. That the post-pliocene formation extends further south than Maryland, to which it has hitherto been limited. 2nd. The co-existence of the megatherium with the mammoth, mastodon, horse, bison, and hippopotamus. 3rd, That the surface of the country has undergone no sudden or violent change since those animals inhabited it, which is proved by the absence of all traces of diluvial action in the enveloping alluvium or surrounding country. 4th. That whatever changes of temperature may have taken place since that time, fatal to the existence of those mammalia, the identity of the fossil with the existing species of the marine shells of the coast shows that the temperature of the ocean at a period prior to the existence of the megatherium, the mastodon, and the hippopotamus was such as is congenial to the present marine testacea of Georgia.

“Description of some Fossil Fruits from the Chalk-formation of the South-east of England.” By Gideon Algernon Mantell, LL.D., F.R.S., &c.

The fruits described are three in number, viz.—

1. *Zamia Sussexiensis*, Mantell.—From the greensand. A cone allied to the *Zamia macrocephala*, a greensand fossil from Kent, figured in Lindley and Hutton's ‘Fossil Flora,’ pl. 125, from which it differs in form and in the number, size, and shape of its scales, which are more numerous, smaller and more oblong than in the Kentish species. It is five inches long, and at the greatest circumference measures six inches. It was found about two years ago in an accumulation of fossil coniferous wood in a sand-bank at Selmeiston, Sussex, at the junction of the Shanklin sand with the gault. Dr. Mantell having sent a cast of the only specimen found to M. Adolphe Brongniart, that distinguished botanist suggested that it might be either the stem of a young cycadaceous plant or the fruit of a *Zamia*, but the situation and small size of the stalk at the base and the appearance of the scales, induce Dr. Mantell to refer it to the latter.

2. *Abies Benstedii*, Mantell.—From the greensand near Maidstone, Kent. A beautiful cone found by Mr. W. H. Bensted in the quarry in which the remains of the *Iguanodon* were discovered in 1834, where it was associated with *Fucus Targionii*, and some indeterminate species of the same genus; stems and apparently traces of the foliage of endogenous trees allied to the *Dracæna* (*Sternbergia*), and of trunks and branches of *Coniferae*. The wood occurs both in a calcareous and siliceous state. The cone found is in every respect such a fruit as the trees to which the wood belonged might have borne. It bears a close resemblance to a fossil from the greensand of Dorsetshire, discovered by Dr. Buckland, and figured in the 'Fossil Flora' of Great Britain under the name of *Abies oblonga* (Fos. Fl. pl. 1.). Unfortunately the outer surface is so much worn that the external figure of the scales cannot be accurately defined; but the sections show their proportionate thickness. There is an opening at the base of the cone occasioned by the removal of the stalk, and an accidental oblique fracture exhibits the internal structure. In the longitudinal section thus exposed the scales are seen to be rounded and broad at their base and to rise gradually, and become thin at their outer terminations. The seeds are oblong, and one seed is seen imbedded within the base of each scale. Mr. Morris considers it to have a great affinity to *Abies oblonga* of Lindley and Hutton, but it is more spherical, and the scales are smaller, more regular and numerous.

3. *Carpolithes Smithia*, Mantell.—From the white chalk of Kent. An account of an imperfect specimen of this fruit was formerly given by Dr. Mantell in his 'Illustrations of the Geology of Sussex.' He lately detected a second and more perfect example in the choice collection of Mrs. Smith of Tunbridge Wells, in honour of whom he has named it. Dr. Mantell remarks, that a slight inspection was sufficient to determine its vegetable origin, for several seeds were imbedded in its substance, and others had been detached in clearing it from the chalk. Dr. Robert Brown suggested that the original was probably a succulent compound berry, the seeds appearing to have been imbedded in a pulpy substance like the fruit of the mulberry, which is a spurious compound berry, formed by a partial union of the enlarged and fleshy calices, each inclosing a dry membranous pericarp.

From the occurrence of the cones above described with the drifted remains of land and freshwater reptiles peculiar to the Wealden, Dr. Mantell infers that these fruits belong to the flora of the country of the *Iguanodon*.

"Notice on the fossilized remains of the soft parts of Mollusca." By Gideon Algernon Mantell, LL.D., F.R.S., &c.

Substances presenting the same general appearance and composition with coprolites, but destitute of the spiral structure, are thickly interspersed among the shells which abound in the rocks of firestone or upper greensand at Southborne in Sussex, sometimes occurring in the state of casts of shells of the genera *Cucullæa*, *Venus*, *Trochus*, *Rostellaria*, &c., from the soft bodies of which testacea Dr. Mantell considers them to have originated. They abound also in the layers

of firestone which form the line of junction with the gault, and are not uncommon in the gault itself in several localities in Surrey and Kent.

Dr. Fitton, in his memoir 'On the Strata below the Chalk' (Geol. Trans. vol. iv. part 2. p. 11), has given an account of similar concretions from Folkstone, where he observed them in some cases surrounding or incorporated with fossil remains, and filling the interior of Ammonites. Dr. Mantell has observed them also in the Shanklin sand in Western Sussex, in Surrey, near Ventnor in the Isle of Wight, and in Kent, and they especially abound in the Iguanodon quarry of Kentish rag near Maidstone, belonging to Mr. W. H. Bensted.

Mr. Bensted having long paid attention to this subject, more than two years ago submitted to Dr. Mantell specimens of fossil shells, the cavities of which were filled with a dark brown substance in every respect identical with the nodular and irregular concretions of coprolitic matter which abound in the surrounding sandstone. Mr. Bensted expressed his belief that the carbonaceous substance was derived from the soft bodies of the Mollusca, and that the concretionary and amorphous portions of the same matter dispersed throughout the sandstone of this bed, were masses of the fossilized bodies of the animals which had become disengaged from their shells, and had floated in the sea till enveloped in the sand and mud, which is now concreted to the coarse sandstone called Kentish Rag. In proof of this opinion reference is made to an account published in the 'American Journal of Science' for 1837, of the effects of an epidemic among the shell-fish of the Ohio, which, killing the animals, their decomposed bodies rose to the surface of the water, leaving the shells in the bed of the stream, and floating away covered the banks of the river. Mr. Bensted points out that nearly the whole of the shells in the Kentish rag of his quarry appear to have been dead shells, and infers that their death might have been owing to a similar cause with that which destroyed the *Uniones* in America; while their bodies intermingling with the drift wood on a sand-bank furnished the concretions described in this communication.

The Rev. J. B. Reade submitted some of the substance of these bodies to an analysis by Mr. Rigg, who confirmed Dr. Mantell's suspicion of the presence of animal carbon in it, and states that the darker portion of the substance contains about 35 per cent. of its weight of carbon in an organized state.

Dr. Mantell adds, that a microscopical examination with a low power detects innumerable portions of the periosteum and nacreous laminae of the shells of extreme thinness intermingled with the carbonaceous matter, together with numerous siliceous spiculæ of sponges, very minute spines of *Echinodermata*, and fragments of *Polyparia*, and remarks that these extraneous bodies probably became intermingled among the soft animal mass before the latter had undergone decomposition. He proposes to term the substance *Molluskite*, and states that it constitutes the dark spots and markings in the Sussex and Purbeck marbles.